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EVALUATION OF MV-60 AND KMP-1 CUTTING MACHINES

[Note: A diagram of the KMP-1 is available in the original document at CIA]

In December 1947, the Technical Council examined the findings of the consultation on the KMP-1 and MV-60 cutting machines. The KMP-1, produced by the Kopeyskiy Plan imeni S.M. Kirov, has an intermittent drive; the MV-60, constructed by Giprouglemash of the Ministry of the Coal Industry of the Eastern Regions, has a ratchet gear drive. The KMP-1 is being produced serially, while the MV-60 is in an experimental stage

The following is the data of their comparative technical properties.

Properties	KMP-1	MV-60
Length, without the cutter (meters)	3.14	3.13
Width (meters)	0.75	0.74
Height, (meters)	0.36	0.40
Weight, (tons)	3.3	3.5
Depth of crosscut (meters)	1.6-2.8	1.6-2.8
Height of the gap (meters)	0.14	0.14
Rate of cutting (meters/sec)	1.1-2.1	1.19
Rate of drive (meters/min)	0.09-0.86	0.23;0.47; 0.70; 0.93. 1.17; 1.40
Manoeuverability rate (meters/min)	8.6	14.5
Tractive force (meters)	5.0-3.0*	7.0-4.0*
Drum capacity (meters)	30-18	25
Electric motor employed	MA-191/10	MA-191/11
Power (kw)	47.0	57.0
Continuous operation rating (kw)	25	30
Maximum torque (kgm)	59	72
Rpm	1,460	1,485
Voltage (volts)	380	380

*The first value corresponds to the working rate, the second to the manoeuverability.

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It is evident from the data that both machines were constructed for the same types of operation and that their range of application is the same. The MV-60 was constructed much later than the KMP-1 and was expected to be an improvement over the KMP-1. However, a close study of these machines shows that the KMP-1 is better than the MV-60 which has a number of weak points.

The following defects of the MV-60 were recorded after tests in mines of the Kirovugal Trust of the Ministry of the Coal Industry of the Eastern Regions on 17 September 1947.

1. It is too long, which makes it difficult to maneuver.
2. The height of the machine, 400 mm, limits its use in uneven ground or in layers less than 0.65 meter thick.
3. The reversing mechanism for working and maneuvering is complex and imperfect.
4. As the result of using a multilink-drive mechanism with friction coupling, additional slack was formed, even during a short period of its operation, which increased the slippage and brought about loss of operating speed. Thus, uneven operation resulted.

Conclusions of the Donets Coal Institute (Donugi) were:

1. The MV-60 cannot operate in vertical directions or in lateral directions without being changed.
2. In operating at an angle of 18-20 degrees or more, when the feed is disconnected, the machine drops, since the feed of the forward portion is not self-locking.

It was further discovered that only 50-55 percent of the 60-kw power input was utilized. In constructing the MV-60, Giprouglemash of the Eastern Regions did not pay much attention to construction technology, which has necessitated changes even in the experimental models.

The KMP-1 was accepted for serial production and further exploitation uses.

The committee of experts suggested: (1) increase of the upper limit of the drive speed, (2) increase in the cable capacity of the drum, and (3) decrease in the length of the machine by using a smaller electric motor.

The greatest fault of the KMP-1 lies in the poor quality of manufacture by the Kopeyskiy Plant, which reduces the value of the machine as a whole. The KMP-1 was recommended by the Technical Council for use in the mines of both the Ministries of the Coal Industry of the Eastern and of the Western Regions.

According to the Giprouglemash of the Eastern Regions, the MV-60 is not complete. This decision was upheld even after tests with improved models. The Technical Council suggested that these machines be further developed and tested.

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